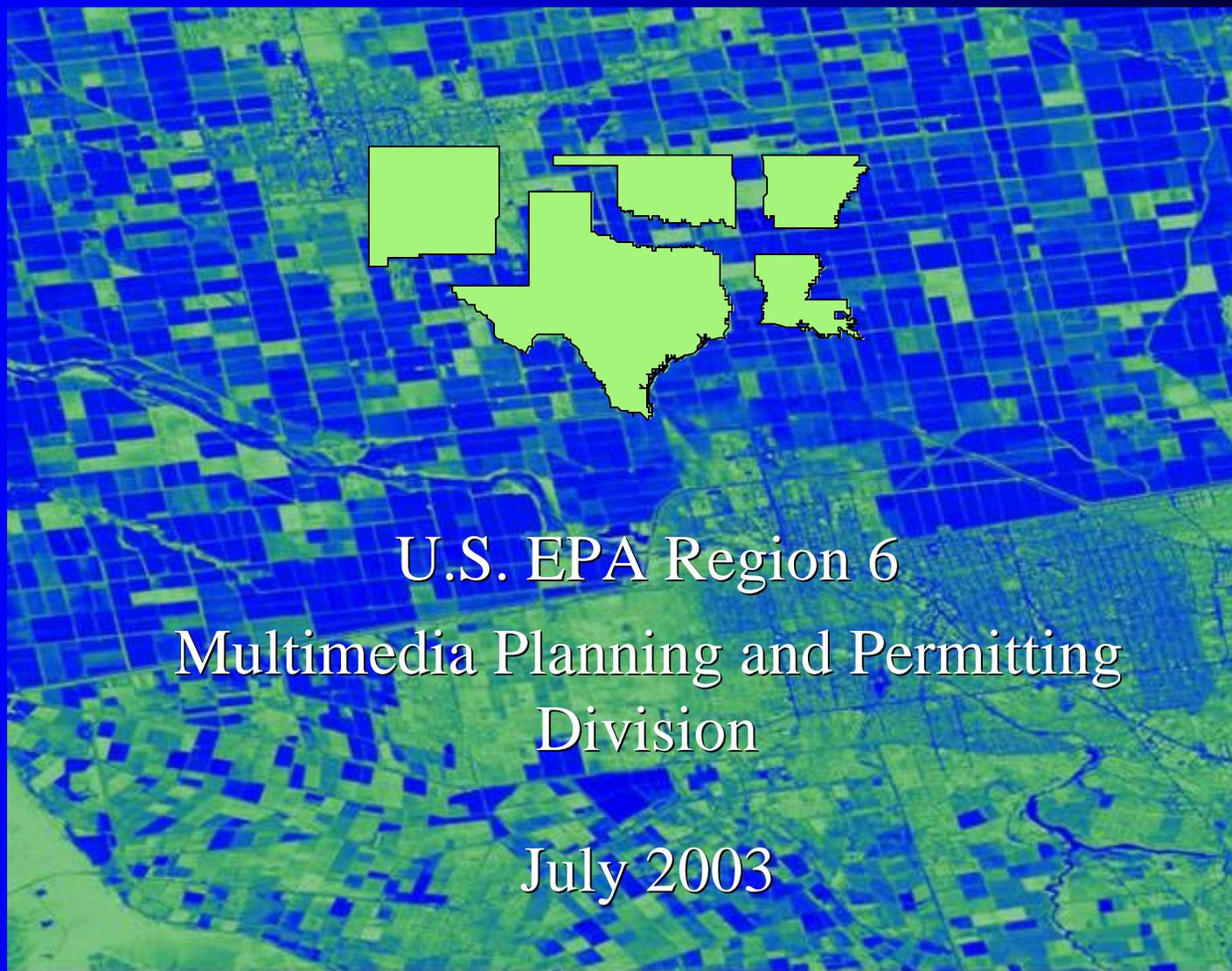


# RAIMI – Risk Based Solutions



U.S. EPA Region 6

Multimedia Planning and Permitting  
Division

July 2003



# RISK BASED SOLUTIONS - Why Are They Important?

- *Reality* - permitting/enforcement actions need to consider bigger picture as opposed to source by source permitting
- We blindly focus on RCRA-regulated units, often in a “forest” of others; are we making a difference with our resources?
- *Internal Agency Pressures* – challenged to find mechanisms that support cross program cooperation and sharing of resources

# RISK BASED SOLUTIONS - Why Are They Important?

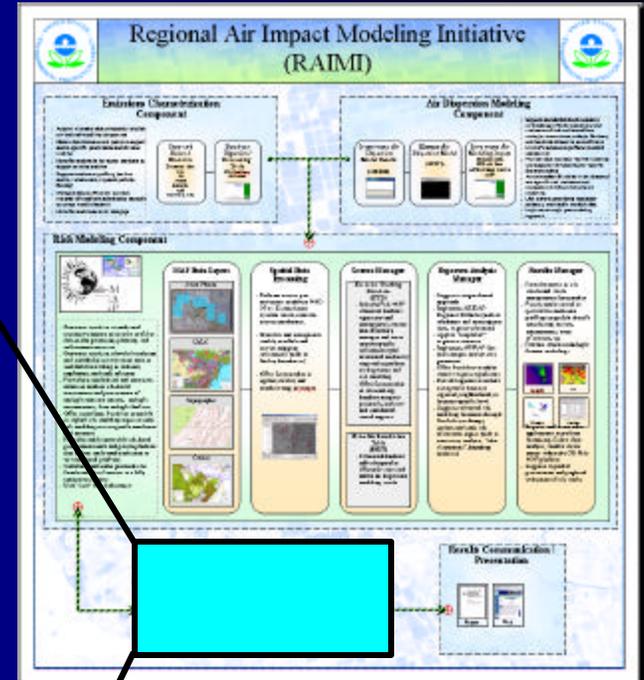
- *Public Simply Wants to Know* – “Am I safe breathing/eating/drinking where me and my family live – And what is being done to ensure my families safety?”
- *Regulatory and National Program Pressures* – challenged to develop localized assessment capabilities that do not just identify problems but provide solutions
- *Simply a logical approach* – to a complex and often overwhelming issue

# EPA REGION 6 SOLUTION

## REGIONAL AIR IMPACT MODELING INITIATIVE - RAIMI -

- Risk-based Prioritization Tool Set and Project Platform to Develop Multi-media Solutions to Environmental Problems

# SOLUTIONS MANAGEMENT COMPONENT



**Risk-MAP Mini Report**  
Summary report listing results of source prioritization

**Prioritization**

- Source prioritization documented in Mini Report
- User defined criteria (total risk, impacts to specific receptors, source type, etc.)
- Initiate facility review with Source Sheet

**Facility Review Report**  
Provides tracking of source-specific details through the creation of *Source Sheets*, which are revised through the solutions management process

**Verification**

- Source location
- Emission profile
- Physical source parameters
- Monitoring data
- Toxicity factors
- Hard copy data from Agency files

*Grouped Sources:*

- Verify surrogates used for allocations

**Risk MAP**  
- Evaluate impacts from monitoring data

**Facility Review Report**  
Source Sheets are revised through the Refinement and Legal Review processes.

**Refinement**

- Identify important data gaps
- Secondary formation and reactivity
- Emissions bounding analysis

*Grouped Sources:*

- Determine actual source locations and consider use of actual source locations in lieu of area allocation

**Risk MAP**  
- Sensitivity analysis for data gaps  
- Evaluate impact of refinement issues on results  
- Impacts from emissions speciation

**Facility Review Report**  
Develop a solutions section of the Facility Review Report that documents evaluation of options and implemented solutions, including predicted gains

**Legal Review**

- Determine permit status
- Current pending or planned actions
- Current source status
- Source operating conditions
- State issues and/or concerns
- Possible issues at similar facilities

**Risk MAP**  
- Evaluate historic emission rates and impacts  
- Evaluate historic/proposed emission rates

**Facility Review Report**  
Periodic additions to the Facility Review Report documenting airshed emissions status and gains after solutions implementation

**Facility Involvement**

- Provide source sheets to facility
- Facility Cooperative Agreement
- Solicit facility data

**Risk MAP**  
- Evaluate facility-provided inputs and resultant impacts to analysis results.

**Solutions**

- Determine acceptable risk levels
- Review options
  - Close source
  - Reduce emission rate for a single source
  - Reduce emission rates for multiple sources
  - Relocate emissions point
  - Technology-based emissions controls (MACT)

*Grouped Sources:*

- Evaluate the use of alternative fuels, mass transit, etc.

- Incorporate monitoring data coincident with solution implementation

**Risk MAP**  
- Evaluate effectiveness of potential solutions  
- Monitor impacts from implemented solutions

# Example Case Study – Port Neches, Texas

## History

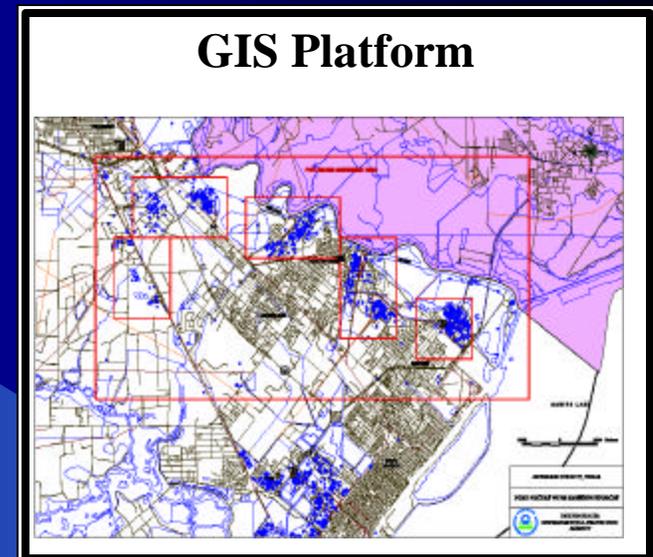
- CEP shows Jefferson County, as having the highest potential for exposure in Region 6

## Context

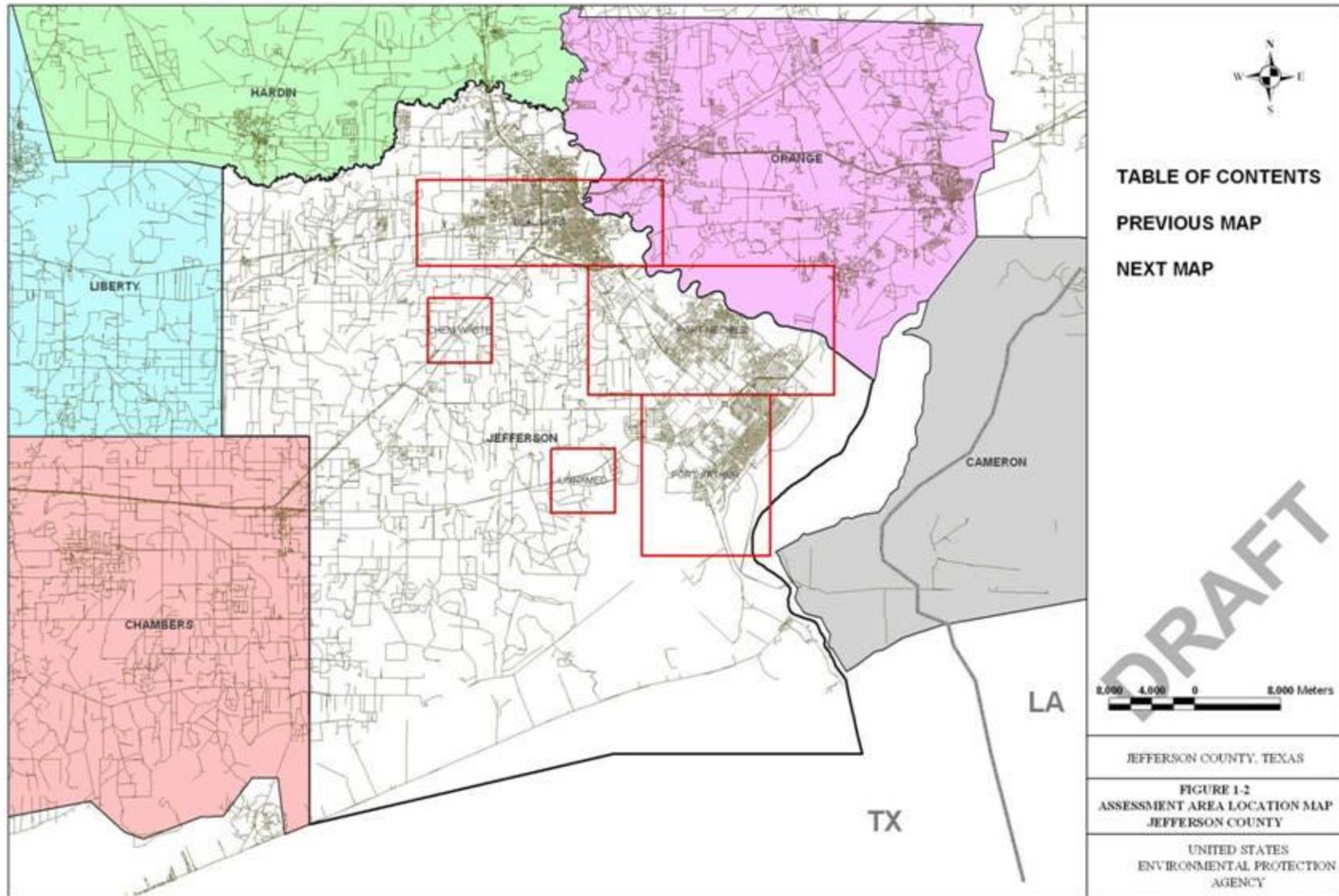
- 16 Major industrial facilities
- 1,500 Point source emissions
- 82 Area and mobile source categories
- 188+ HAPs

## Findings

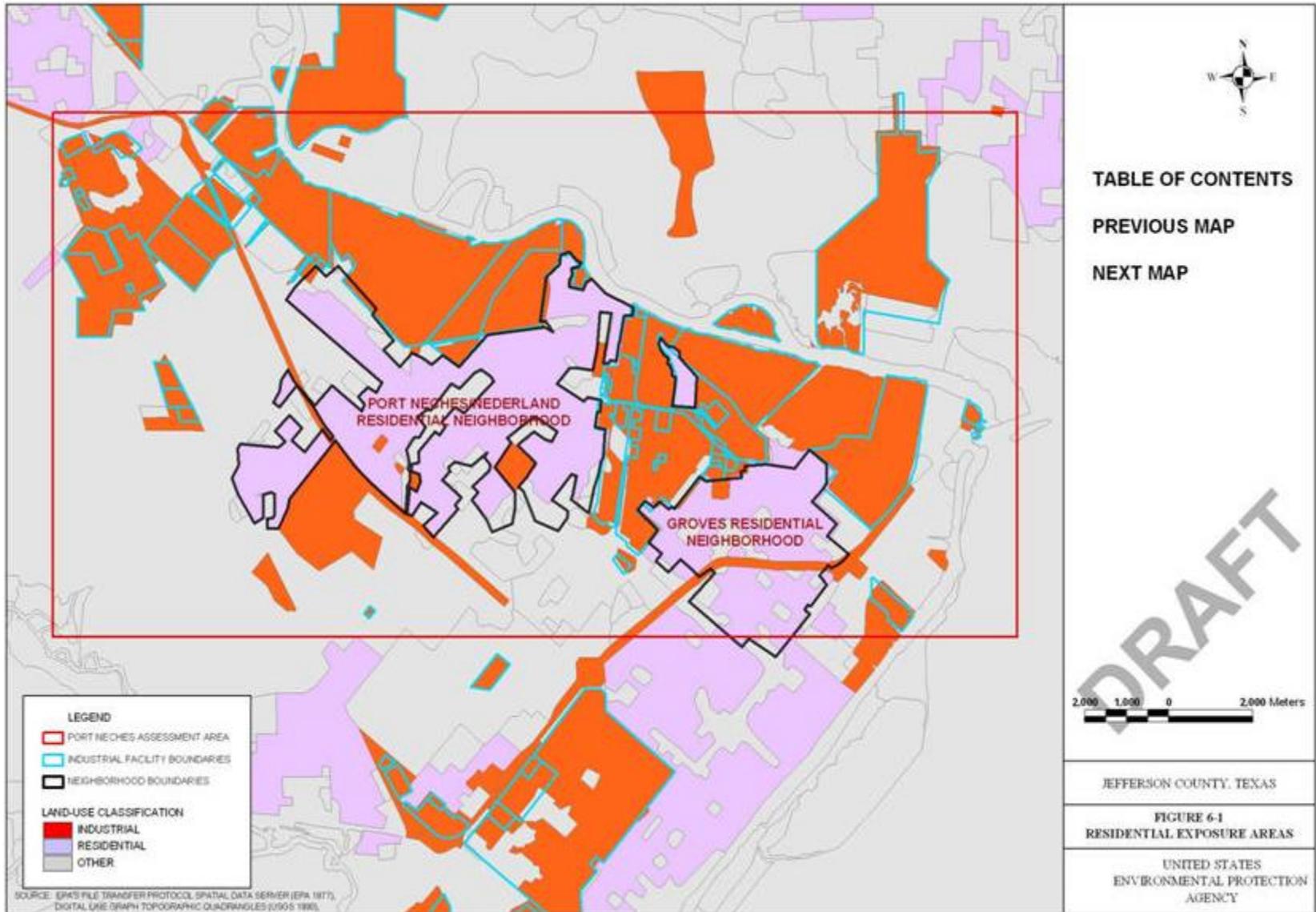
- Identified and prioritized 2 facilities
- Identified and prioritized 5 point sources
- Identified local data gaps
- Prioritized 1 area and 2 mobile emission source categories



# Select Project Domain That Corresponds to How Data Is to Be Used – Counties

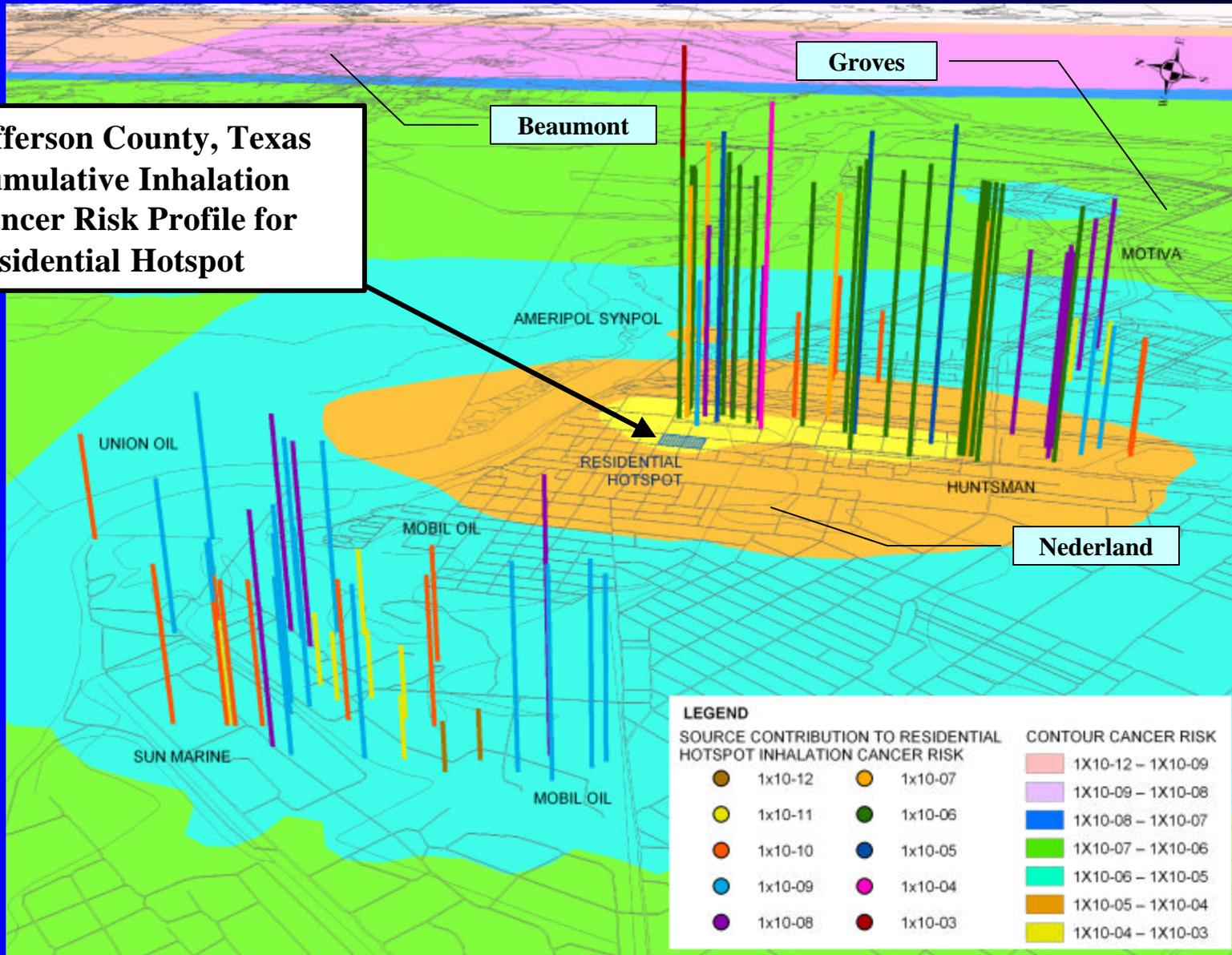


# Define Assessment Scope – Community Level Resolution

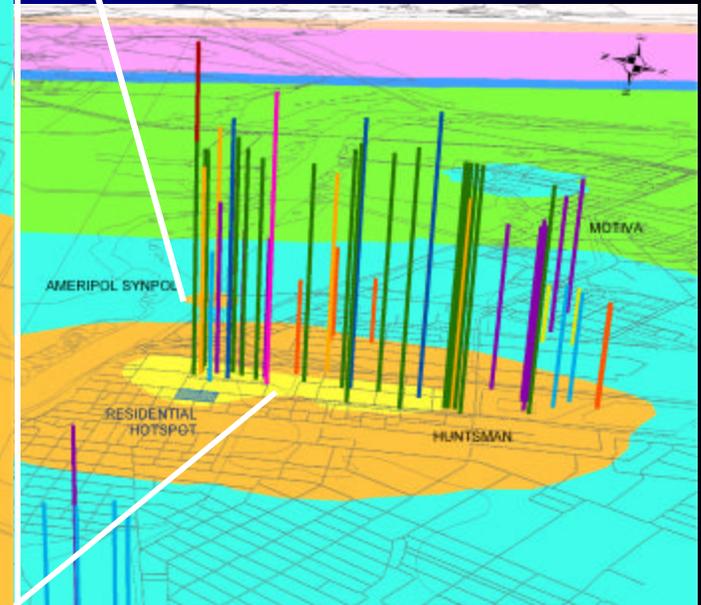
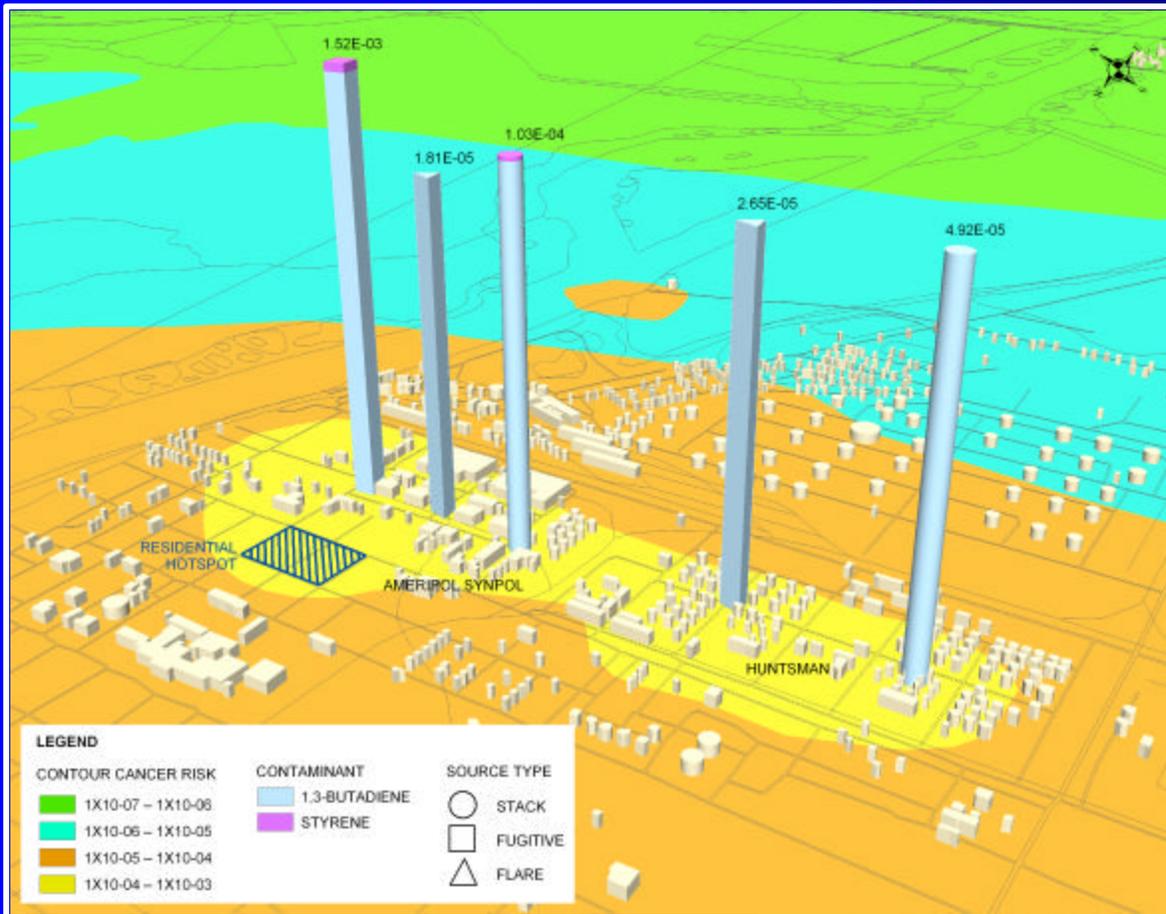


# Results Transparency to Support Prioritization

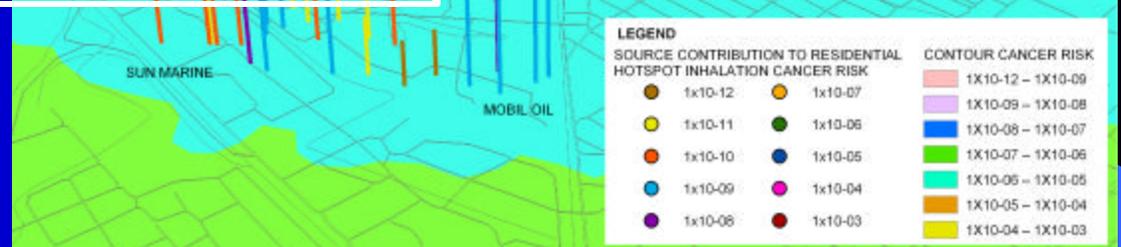
**Jefferson County, Texas  
Cumulative Inhalation  
Cancer Risk Profile for  
Residential Hotspot**



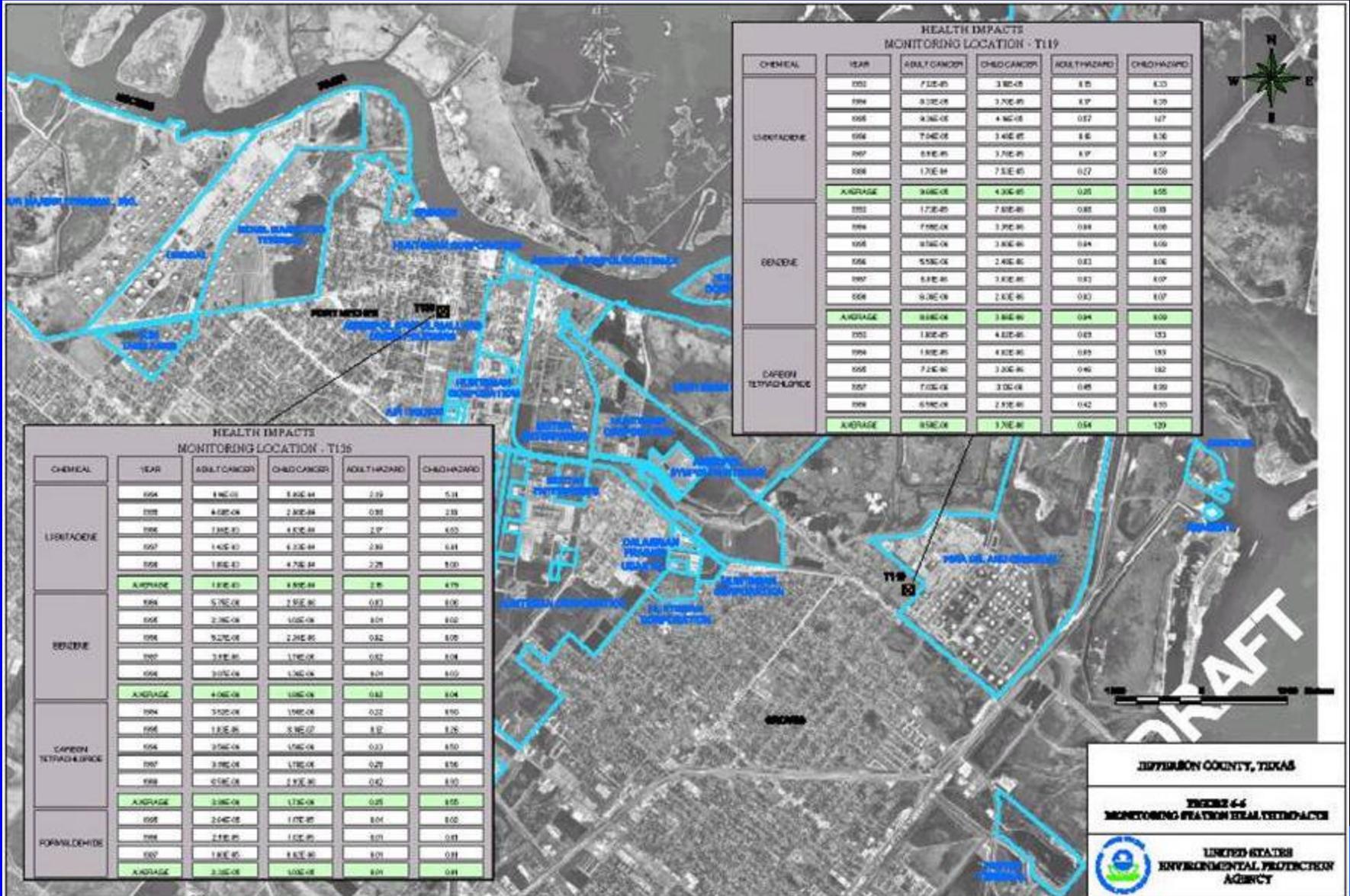
# Results Resolution to Support Prioritization and Verification – Source Attribution Profiling (Zoom)



**Jefferson County, Texas  
Cumulative Inhalation  
Cancer Risk Profile for  
Residential Hotspot**



# Example Results: Air Monitoring Data



JEFFERSON COUNTY, TEXAS

FIGURE 4-6  
MONITORING STATION HEALTH IMPACTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

# Results Resolution to Support Verification and Legal Review – Source Attribute Tracking (Sample)

Source Attribute Table		
Account No.	JE0017A	
Account Name	Ameripol Synpol Corp.	
Site Name	WasteWater	
Facility Name	Waste water system	
Source Type	Fugitive	
Point Name	WSTWTR DISCH TO RT	
Unique Point Name	JE0F011	
EPN	Wastewater	
FIN	F-WWATER	
Permit Status	RCRA – Permit No. 988A	
SIC Code	--	
Facility Contact	Bob Smith – 222-222-2222	
Emissions Profile (TPY)		
Contaminant	Actual Annual	Actual Allowable
1,3-Butadiene	11.87	0
Styrene	11.42	0



Source Attribute Table		
Account No.	JE0017A	
Account Name	Ameripol Synpol Corp.	
Site Name	Trap 4 – XS99	
Facility Name	ETF Styrene Tank	
Plant ID	Tank Sector 9989A	
Point Name	NE1	
Unique Point Name	JE0F00M	
EPN	T-ESTY	
FIN	TANKS-ESTY	
Permit Status	RCRA – Permit No. 988A	
SIC Code	--	
Facility Contact	Bob Smith – 222-222-2222	
Emissions Profile (TPY)		
Contaminant	Actual Annual	Actual Allowable
1,3-Butadiene	1.78	0
Styrene	0.67	0

# Stakeholder Involvement

- **Exchange Knowledge/Concerns with State and Facility**
- **State Declared Formal State of Emergency Condition of Air Pollution**
- **Enforcement Actions Focused on Prioritized Sources**

# Solutions

- **Huntsman – Implementing Engineered Solutions for Prioritized (Highest Risk) Sources**
- **Ameripole Synpol – “Closing Out” Prioritized Sources**
- **TCEQ – Now Asking Facilities to Report Emissions for Grandfathered Sources (Statewide)**

# Example Case Study – Little Rock Arkansas

## History

- Community complaints

## Context

- Single facility multiple sources
- Small case study

## Findings

- No need for exposure reduction

# Example Case Study

## Calcasieu, Louisiana

### History

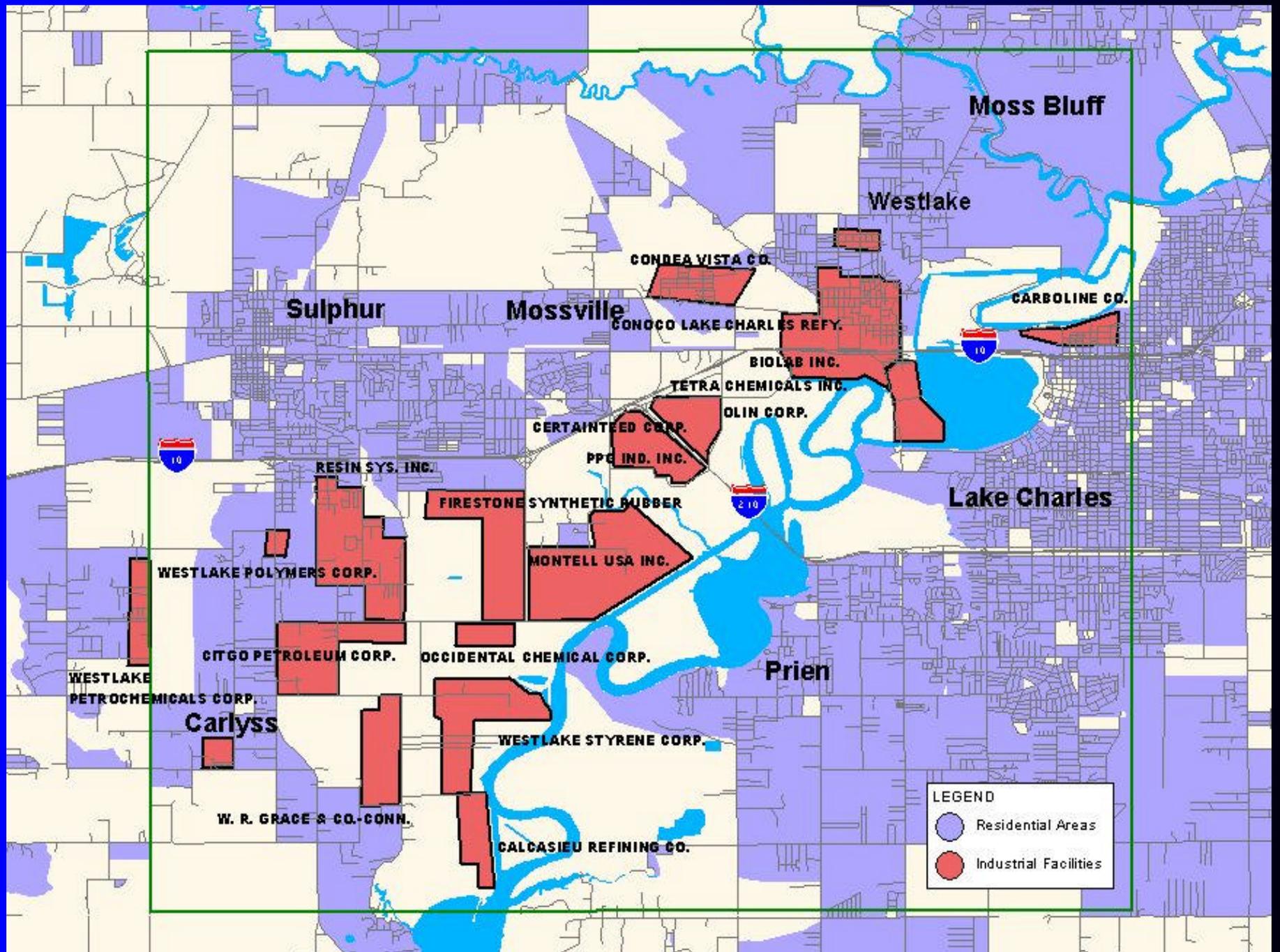
- CEP identified potentially high broad-scale exposure effects
- ATSDR finds elevated blood dioxin levels
- Community highly concerned

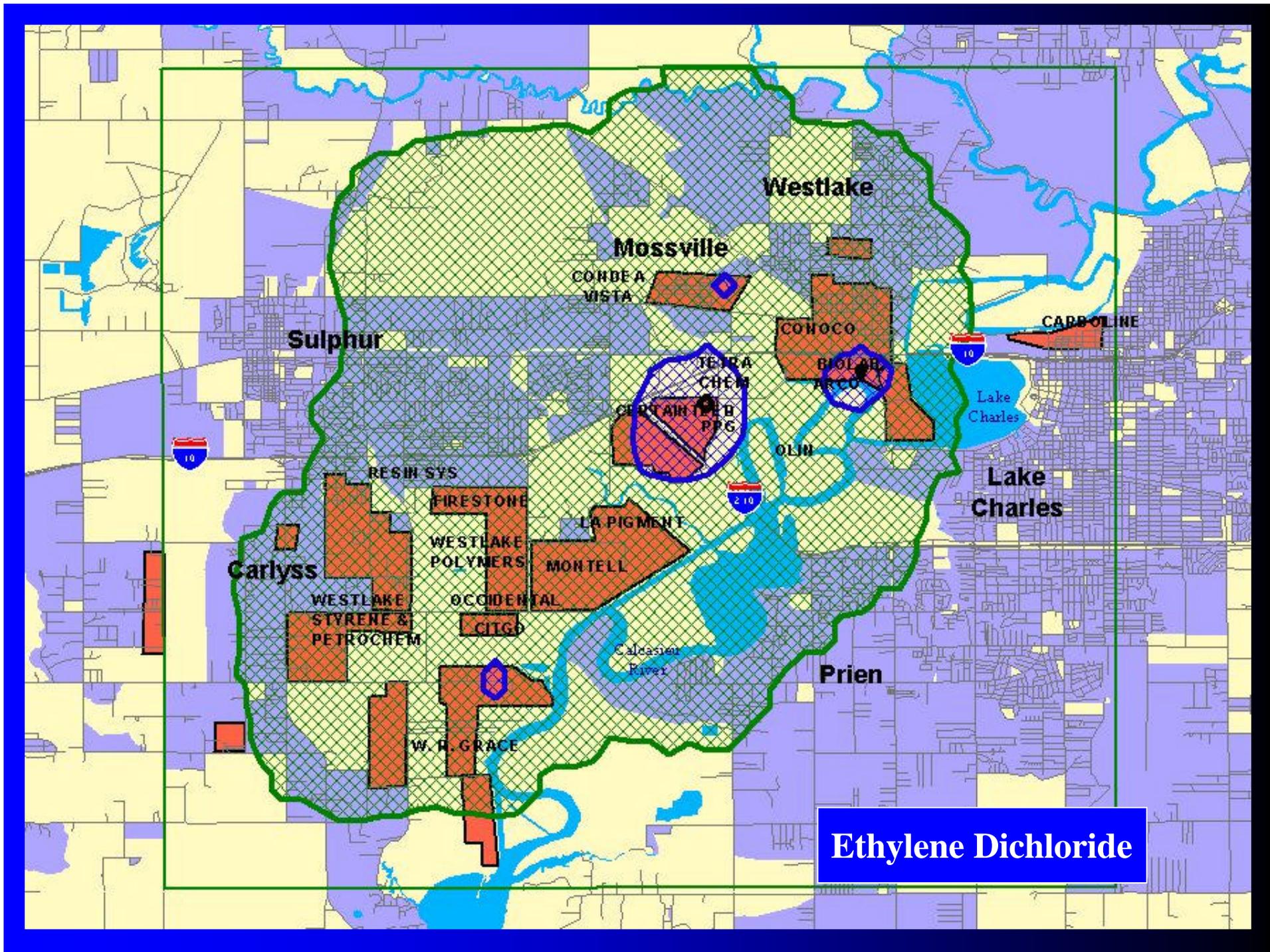
### Context

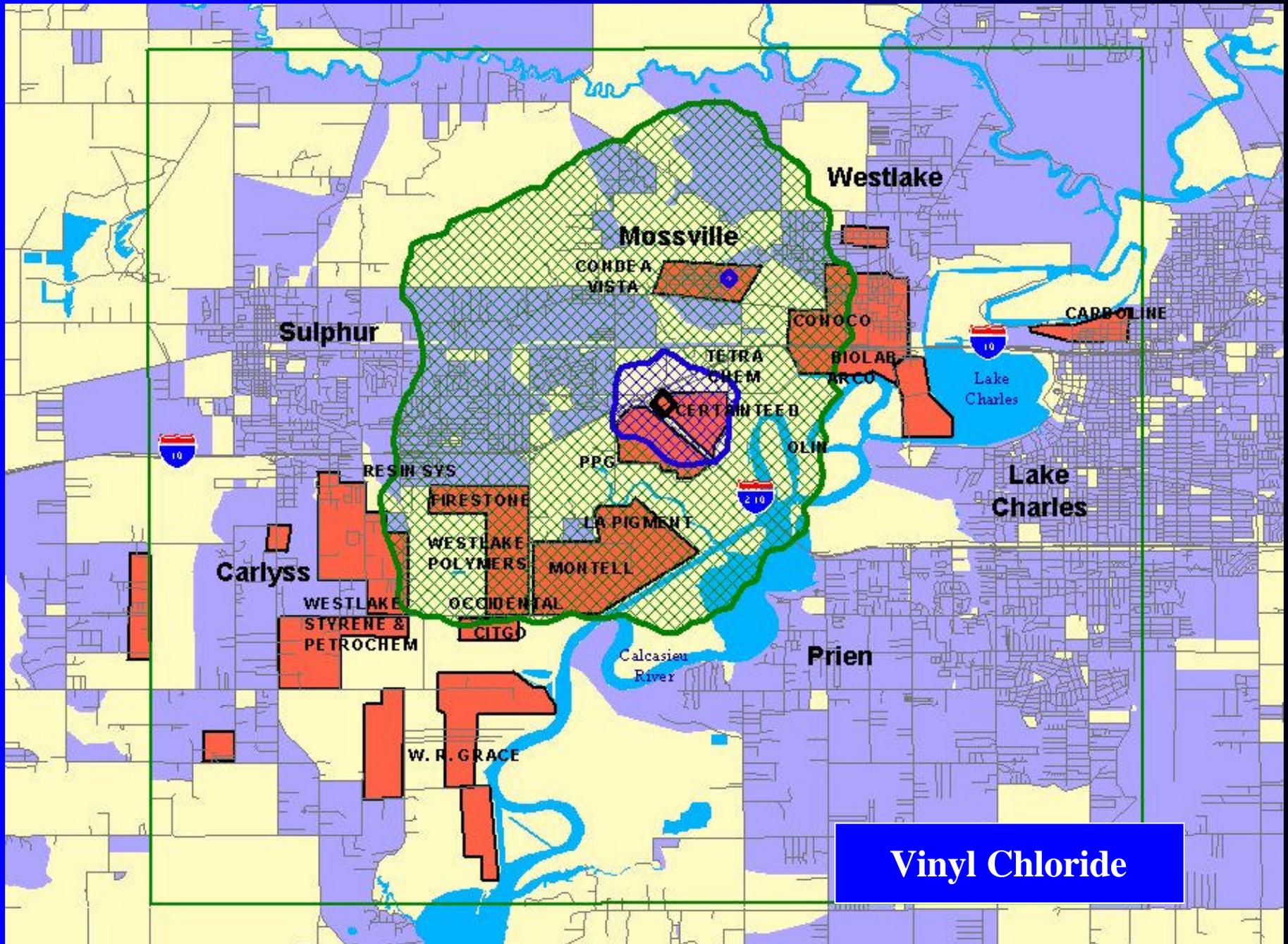
- 18 Major industrial facilities
- 2,500 Point source emissions
- Chemicals of concern – 6 VOCs and Dioxin

### Findings

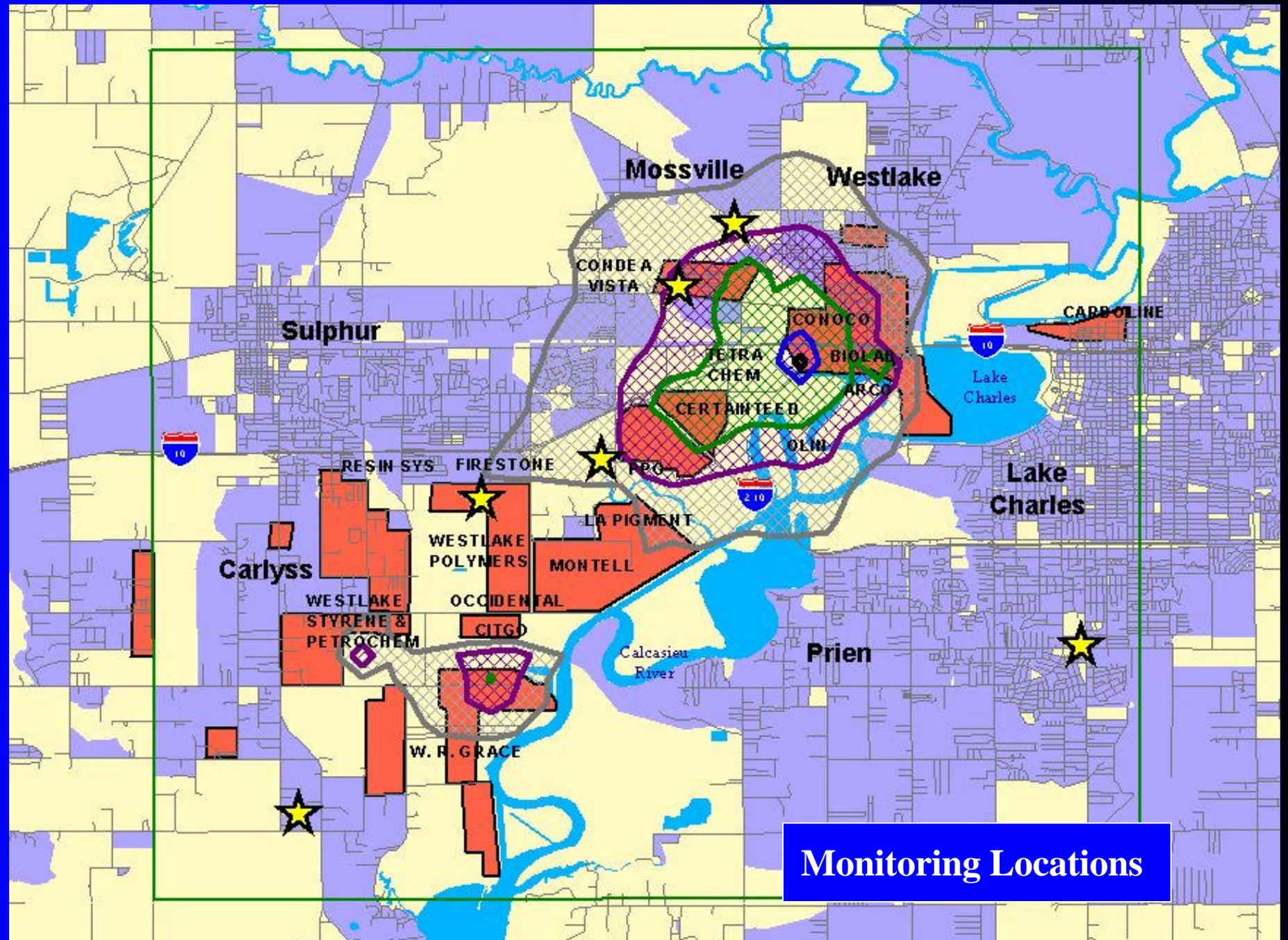
- Results used to prioritize sources and site monitors







Vinyl Chloride



**Monitoring Locations**

# How to Use Results

- **Conduct Risk-Based Prioritizations**
- **Complements National-Scale Assessments**
- **Identify Risk Trends**
- **Determine Significance of Data Gaps**
- **Track Emissions Reduction Efforts**
- **Support Monitoring Programs**